AMSAT News Service Weekly Bulletins
Issue: ANS-241
Date: 2016-08-28
Sources: amsat-ans-2016-ans-241-weekly-hyperkitty-b912696fcb.txt

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AMSAT NEWS SERVICE
ANS-241

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-241 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 241.01
>From AMSAT HQ KENSINGTON, MD.
August 28, 2016
To All RADIO AMATEURS
BID: $ANS-241.01

US ARISS Contacts -Call for Proposals- Runs September 1 - November 1

Message to US Educators
Amateur Radio on the International Space Station
Contact Opportunity

Call for Proposals
Proposal Window September 1 - November 1, 2016

The Amateur Radio on the International Space Station (ARISS) Program is seeking formal and informal education institutions and organizations, individually or working together, to host an Amateur Radio contact with a crew member on board the ISS. ARISS anticipates that the contact would be held between July 1, 2017 and December 31, 2017. Crew scheduling and ISS orbits will determine the exact contact dates. To maximize these radio contact opportunities, ARISS is

looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed education plan.

The deadline to submit a proposal is November 1, 2016. Proposal information and documents can be found at www.arrl.org/hosting-an-ariss-contact.

The Opportunity
Crew members aboard the International Space Station will participate in scheduled Amateur Radio contacts. These radio contacts are approximately 10 minutes in length and allow students to interact with the astronauts through a question-and-answer session.

An ARISS contact is a voice-only communication opportunity via Amateur Radio between astronauts and cosmonauts aboard the space station and classrooms and communities. ARISS contacts afford education audiences the opportunity to learn firsthand from astronauts what it is like to live and work in space and to learn about space research conducted on the ISS. Students also will have an opportunity to learn about satellite communication, wireless technology, and radio science. Because of the nature of human spaceflight and the complexity of scheduling activities aboard the ISS, organizations must demonstrate flexibility to accommodate changes in dates and times of the radio contact.

Amateur Radio organizations around the world, NASA, and space agencies in Russia, Canada, Japan and Europe sponsor this educational opportunity by providing the equipment and operational support to enable direct communication between crew on the ISS and students around the world via Amateur Radio. In the US, the program is managed by AMSAT (Radio Amateur Satellite Corporation) and ARRL (American Radio Relay League) in partnership with NASA and CASIS (Center for the Advancement of Science in Space).

More Information
Interested parties can find more information about the program at www.ariss.org and www.arrl.org/ARISS.

For proposal information and more details such as expectations, proposal guidelines and proposal form, and dates and times of Information Sessions go to http://www.arrl.org/hosting-an-ariss-contact.
Please direct any questions to ariss at arrl dot org.

About ARISS
Amateur Radio on the International Space Station (ARISS) is a cooperative venture of international amateur radio societies and the space agencies that support the International Space Station (ISS). In the United States, sponsors are the Radio Amateur Satellite Corporation (AMSAT), the American Radio Relay League (ARRL), the Center for the Advancement of Science in Space (CASIS) and National Aeronautics and Space Administration (NASA). The primary goal of ARISS is to promote exploration of science, technology, engineering, and mathematics (STEM) topics by organizing scheduled contacts via amateur radio between crew members aboard the ISS and students in classrooms or informal education venues. With the help of experienced amateur radio volunteers, ISS crews speak directly with large audiences in a variety of public forums. Before and during these radio contacts, students, teachers, parents, and communities learn about space, space technologies, and amateur radio. For more information, see www.ariss.org, www.amsat.org, and www.arrl.org.

Also, join us on Facebook: Amateur Radio on the International Space

Station (ARISS) / Follow us on Twitter: ARISS_status

[ANS thanks ARISS for the above information]

Amateur Satellite Educational Videos

David Casler KE0OG has released a couple of videos which aim to explain amateur radio satellites

They form part of his collection of training videos for the Amateur Radio Technician, General, and Extra exams.

This video introduces the orbital mechanics part of amateur satellites, including the concept of orbits, eccentricity, Keplerian elements, and definitions of key terms. These videos are updated for the 11th edition of the "ARRL Extra Class License Manual for Ham Radio."

Watch Amateur Extra Lesson 2.3, Part 1, Amateur Satellites
https://youtu.be/Ku9rf9Lwld4

The second half of the video discusses polarization, Faraday rotation, repeaters, transponders, and band and mode designations. Note one error in which I refer to the X band as in the 10 MHz region when it should be 10 GHz.

Watch Amateur Extra Section 2.3 Part 2, Amateur Satellites
https://youtu.be/ebUeCKjAPFY

These videos are updated for the 11th edition of the "ARRL Extra Class License Manual for Ham Radio."

David thanks you for watching his videos! His channel, "Ham Radio Answers," is available to help anyone become an active, on-the-air amateur radio operator! David concludes, "I am unique in that I provide the only set of YouTube training videos that accompany the ARRL license manuals, section for section. I try hard to answer every Ask Dave question individually if I can."

https://www.youtube.com/user/davecasler

[ANS thanks Southgate ARN for the above information]

Expanding SatNOGS for Satellite Command and Control

Although quite some time has passed since their last update, the SatNOGS team and the community has been busy working on it’s software and hardware components, allowing modular setups.

A large amount of focus has been with the SatNOGS client software, allowing the user to not only use RTL-SDR based dongles but a far greater variety of SDR solutions using GnuRadio. In conjunction with that, SatNOGS client is able to use Amateur Radios that are supported by hamlib (we’ve already tested on Yaesu and Kenwood radios). Such functionality paired with our new ground station hardware design, and further tests on after market designs such us Yaesu Az/El rotator,

would allow the SatNOGS network to not only receive but transmit data via the network to satellites.

For a few months now Libre Space Foundation, the organization that assists the development and operation of the SatNOGS networks, has been working together with the University of Patras on developing and manufacturing the first satellite with most of it’s components based upon open hardware and using free software, UPSat, https://upsat.gr/

An open hardware and software satellite, especially one built by Libre Space Foundation would have a great chance for the SatNOGS network to implement command and control features on it’s SatNOGS client, allowing a fully open Low Earth Orbiting satellite communication stack from earth to orbit and back.

Communications with the satellite are implemented through ECSS Standard Commands as described in ECSS-E-70-41A standard (CCSDS). You can checkout the code of the client on GitHub
https://github.com/satnogs/satnogs-client/tree/dev
and the ecss services implemented on the satellite at
https://github.com/librespacefoundation/ecss_services

There has been a lot of effort to make sure that all the needed functionality on the SatNOGS client has been implemented, while in parallel maintaining modularity and extensibility for future satellites and other protocols.

Do you have a satellite in the works and want to use SatNOGS client as command and control? Let us know and we will be happy to work with you expanding our client!

https://satnogs.org/2016/08/cnc-librecubesat/

[ANS thanks SatNOGS and Daniel Cussen, for the above information]

The AMSAT Office will be closed through Wednesday, Sept 7th

Martha announce via the AMSAT-BB that The AMSAT Office will be closed through Wednesday, Sept 7th.

She requests "Please do not leave messages as I will not be able to answer them."

The office will reopen Thursday September 8.

[ANS thanks Martha for the above information]

Aves Island DXpedition to Include Satellite Operations

Steve, W4DTA/YV5DTA, announced that his group (ARV, Asociacion de Radioaficonados de Venezuela) back in Venezuela got an invitation by the Navy to activate YV0 (Currently the #18 most wanted in the world).

A team of 14 operators will depart on August 27th and operate as YX0V for 7-10 days. The team is planning to be active between August 28th and September 5th.

Activity will be on all bands (HF/VHF) and modes (CW, SSB, the Digital modes, FM and Satellites). Steve, W4DTA, will be the QSL Manager for the operation.

The Caribbean location and flat island terrain should provide excellent footprints across North and South America.

Steve, W4DTA/YV5DTA, sent out the following update on August 20th:

Hello all..
YX0V team both in YV and here in the USA have been working almost non top! A big FEDEX package was send to Caracas today with shirts, basic supplies and a new antenna analyzer, hopefully it will arrive in time.

The team is now working on a contingency plan for power. At the moment there is only one power plant working in YV0, so there are periods of black outs mostly during the night. The team is purchasing a new generator capable of running a few stations, so there might be times that not all stations will be on the air. A operating plan should be available to me very soon. The good news Hams around the world have step up with donations, and that is helping defray some of the cost.

More to come, but if you have any questions that you will like me to ask the team, please feel free to email me or call me.
73.... Steve, W4DTA

For more details and updates on the YX0V DXpedition, see the following URLs: YX0V Web site: http://yx0v.com
Twitter: https://twitter.com/yx0v2016
Facebook: https://www.facebook.com/groups/yx0v2016

ADDED NOTES: Tom, W5KUB, hosted an Amateur Radio Roundtable on August 16th, which contains a converstaion with W4DTA/YV5DTA about the upcoming YX0V operation.

The video can be viewed on YouTube.com:
https://youtu.be/CSTYx2pvBW4?t=1757
Also, watch short videos on YouTube.com at:
https://www.youtube.com/watch?v=CjGsEFKXVwk&feature=youtu.be
https://www.youtube.com/watch?v=6uV89vEuwRM

[ANS thanks Steve, W4DTA/YV5DTA and Southgate ARN for the above information]

AMSAT Phase 4 Ground weekly report for 26 August 2016

Some of you may know Mr. Brain ?G4GUO. He's been working on DVB-S2 BCH decode and has it correcting errors (big YAY here, this stuff is hard. But his last name is Brain, so there's that.)

He's given us the thumbs up to use it on Phase 4. he is planning on using NVIDIA CUDA to do the LDPC decoder because he doesn't think a general CPU will hack it.

There's other really good news on the "new hardware that will make our radio easier to build but will take hard work to get fully functional" front. Two types of hardware we can't talk about just yet

because the details aren't yet public, but there is a third. (And actually, a fourth, counting the fact that in two days we can buy an SR Systems DVB Modulator because the company will be coming back from their month-long vacation.)

That Snapdragon certificate course that I (foolishly, because Time) signed up for at UCSD? The capstone project is coming right up, and I'm going to see how much we can get out of the quad core processor and onboard DSP in efforts to do some type of Phase 4 Ground radio (or radio peripheral) on Android on a DragonBoard 410c. This would be as the final project in the certificate program, so it's worth the time, it's just kind of feeling like school.

Slack is really enjoyable to use and useful for having more personal and flexible virtual meetings than email. Slack is not a replacement for the email list, but I'm going to go ahead and invite everyone that has subscribed to the mailing list, to our Phase 4 Ground Slack. (why add Slack? Because it's searchable, integrated with Github and *many* other services and sites, and easy to organize for technical discussions and work.)

I believe Jerry (our AMSAT Vice President of Engineering) has filled out the paperwork to get us a free upgrade to the pro version of Slack. This gives us all the useful functions of Slack. We can live with the "free" version, but the upgrade is a big benefit of all those volunteer hours that we logged during the last seven months.

Another big deal is that we need computers to volunteer for our two node-locked licenses from Xilinx that allow us to target ALL the chips out there, even the ones in the bigger USRPs. We have a brand new laptop here in San Diego and are trying to figure out Windows or Linux for Vivado. We need a second site that can support FPGA/HDL design. Jerry Buxton nominated Bill Reed in Texas.

Are there any other individuals that want to provide remote development with this license opportunity? Otherwise, we go with San Diego and Texas.

If not, then we put the two that we have so far "on the air". I have about 8 people on the list right now that want to do more FPGA/RFNoC learning, so let's start getting some traction here with the license, logging in, tutorials, take-this-job descriptions, etc.

Bob N4HY is giving the Sunday tutorial at TAPR DCC and I agreed to help him. We're going to talk about DARPA Spectrum Collaboration Challenge, why amateur spectrum is under pressure, and what amateurs need to do about it.

My proposed title was "Nobody goes there anymore. It's too crowded."

But Bob countered with "Spectrum Crunch is real. Amateur radio needs to take action."

I think mine's funnier but Steve Bible will probably go with Bob's. Anyway, if you're at DCC, please let Mike Sprenger W4UOO know - he's helping coordinate all of us Phase 4 people while we're there so that we can find each other and talk up a storm. Thank you Mike!

Please give feedback if you have it. It makes a big difference. I know I told some of you I read minds, but that might have been a small exaggeration.

-Michelle W5NYV

[ANS thanks Michelle W5NYV via the AMSAT-BB for the above information]

2016 AMSAT Space Symposium Registration Reminder - Continued

** Booking your Carnival Cruise does not register you for the AMSAT Symposium **
There is a charge for each Symposium attendee of $40. This fee applies to those who will attend the technical presentations only and includes a copy of the printed Proceedings. Additional guests are entitled to attend all other events. The registration form is available from the AMSAT office or store website.

Online Symposium registration:
http://store.amsat.org/catalog/product_info.php?products_id=130

** Ground transportation options have been added to the FAQ page on the AMSAT Symposium web page**
Carnival offers round-trip. Transportation from HOU airport to the cruise terminal at approximately $74 per person, IAH airport $94 per person. If you are traveling to the Board of Directors meeting, you may still utilize the Carnival transportation option for your return to the airport from the cruise terminal. However, you will need to obtain other transportation between the airport and the Galveston DoubleTree hotel.

Cruise information may be found at:
http://www.amsat.org/?page_id=3667

[ANS thanks 2016 AMSAT Space Symposium Committee for the above information]

AMSAT-NA Board of Directors Ballots Due by September 15th

Ballots have been mailed to AMSAT-NA members in good standing, and must be returned to the AMSAT-NA office by September 15, 2016 in order to be counted. Those sent outside North America were sent by air mail. If you have not received your ballot package in a reasonable time for your QTH, please contact the AMSAT-NA office. Your completed ballot should be sent as promptly as possible, and those from outside North American preferably by air mail or other expedited means.

This year there are five candidates:

Tom Clark, K3IO
Clayton Coleman, W5PFG
Mark Hammond, N8MH
Bruce Paige, KK5DO
Paul Stoetzer, N8HM

The three candidates receiving the highest number of votes will be seated as voting Board Members with two year terms. The two candidates receiving the next highest number of votes will be non-voting Alternate Board Members with terms of one year. Please vote for no more than three candidates.

Please take the time to review the candidate statements that accompany the ballot and determine who you wish to see on the Board. Election of Board members is both an obligation as well as an opportunity by our membership to help shape the future direction of AMSAT-NA.

[ANS thanks AMSAT-NA for the above information]

ARISS News

+ A Successful contact was made between The Children's Museum of Indianapolis, Indianapolis IN, USA and Astronaut Kate Rubins KG5FYJ using Callsign NA1SS. The contact began 2016-08-23 15:09 UTC and lasted about nine and a half minutes. Contact was direct via N9DR. ARISS Mentor was Charlie AJ9N.

Upcoming ARISS Contact Schedule

+ Lewis and Clark National Historic Park, Astoria, OR, direct via KF7TCG. The ISS callsign is presently scheduled to be NA1SS. The scheduled astronaut is Takuya Onishi KF5LKS
Contact is a go for: Sat 2016-09-03 18:21:03 UTC

School Information:

Thomas Jefferson was a scientist and a pioneer in many fields of study including biology, geography, meteorology, and ethnology. Since at least 1793 he had been planning for an exploration of the largest remaining unexplored land on earth: the American West. This resulted in the four pages of detailed instructions that he gave to Meriwether Lewis during their 1801-03 planning for the voyage of the Corps of Discovery. The resulting 1804-06 U.S. Army expedition to explore along the Missouri and Columbia Rivers was led by Captains Meriwether Lewis and William Clark. The 33 diverse members of the Corps spent the winter of 1805-06 at a campsite they built just a few miles from the mouth of the Columbia River and named after the local Clatsop Indians. At Fort Clatsop, the captains planned for the return journey to the United States and worked on writing scientific descriptions of the plants and animals they'd encountered that were new to science (a total of 178 species of plants and 122 animals by the end of the trip). Like President Thomas Jefferson and Captain Meriwether Lewis, today's astronauts have a curiosity for exploring beyond known frontiers.

Some local students who have participated in various education programs at Lewis and Clark National Historical Park and live in surrounding Clatsop County have been learning about the International Space Station (ISS) and are hoping to have a brief radio conversation with an ISS astronaut. All of these students live in Clatsop County and are familiar with the park through field trips, park summer camps, family visits, or education programs with rangers visiting their classrooms. The park connected with these students through four relationships:

1. The Northwest Regional Educational Service District and the Astoria School District offer a migrant summer school to serve students who have moved within the last three years for their parent's work. Several of these students participated in summer camps that the park offered and they were excited about the opportunity to learn about the International Space Station and talk with an astronaut.

2. Three small local Girl Scout Troops (#10025, #10026, #10086) were interested in this opportunity as they have been focusing on the three keys to Girl Scouting which are Discovering, Connecting, and Taking Action. The girls and their leaders were happy to incorporate this ARISS opportunity into their projects.

3. The Fort Clatsop District of Boy Scouts includes local troop #509 and #542. Since Scouting is about character development and having confidence in yourself to Be Prepared, the ARISS program is a good challenge for these youngsters. Their district is named in honor of the 1805-06 winter encampment of the 33 people of the Lewis and Clark Expedition.

4. Three of the youth recruited for this special program are children or grandchildren of Lewis and Clark National Historical Park rangers and were excited to learn that an astronaut radio conversation would be happening in their park.

Students & Anticipated Questions:

1. Alejandra (12): To prepare for his journey, Captain Meriwether Lewis was tutored by experts in medicine, navigation, astronomy, mathematics, botany, and paleontology. What was the hardest part of your training?
2. Kevin (13): The Corps of Discovery enjoyed fiddle music, do you listen to music in space? If so, what kind?
3. Katie (11): How different does your body feel in microgravity and how long does it take to adjust after arrival in the space station?
4. Liam (8): Lewis and Clark failed to find a Northwest Passage. Have any of your experiments failed or not gone like you wanted?
5. Nahomy (Naomi) (10): While wintering at Fort Clatsop, the Corps of Discovery made buckskin clothes as their uniforms wore out. How many outfits of clothing do you have with you, and what kind of material are they made from?
6. Dashel (7): Why do you like communicating with kids?
7. Kelsey (11): Meriwether Lewis treasured an ermine scarf he received from a Shoshone chief. Do you have a souvenir from space?
   If so, what is it?
8. Sophie (8): Do you create art from the views from the space station?
9. Derek (8): When is your next spacewalk? What is your favorite thing when you are outside the space station?
10. Crystal (12): Lewis brought his dog Seaman with him on the expedition. Are there any research animals on the space station now? If so, what are they?
11. Xochitl (Sochi) (13): Although most members of the Corps of Discovery were single, York and John Shields had families at home. Do you miss your family, and how do you communicate with them?
12. Frances (8): Do you guys keep journal like Lewis and Clark did?
13. Rylee (7): If a microorganism changed genetically on the International Space Station would it be considered a space alien?
14. Logan (6): Were you in a scouting program as a child? If so, did it affect your desire to work in space?
15. Linnea (8): Lewis and Clark played backgammon. What games do you play?
16. Josie (8): When Sacagawea became sick, Lewis treated her. If you get hurt or sick, who treats you?
17. Rosalinda (9): What are your space suits made of, and can they catch on fire?
18. Belinda (9): How do you protect your eyes when the space station

is facing the sun?
19. Elias (13): Are you doing any experiments with animals adapting to microgravity?
20. Samantha (10): What does a shooting star or a meteor shower look like from space?

[ANS thanks ARISS via Charlie AJ9N and David AA4KN for the above information]

Satellite Shorts From All Over

+ International EME Conference Presentation Videos

Videos of the presentations given at the 17th International EME conference, held in Venice August 19-21, 2016 are now available. They include talks by Sam G4DDK @DXING, Dave G4HUP, Charlie G3WDG, Alex ZS6EME and Joe Taylor K1JT. Watch the videos on the YouTube channel of Giulio Pico IW3HVB at: https://www.youtube.com/channel/UCFct56EA6F9lkqMBmydh5hw EME 2016

The schedule of the EME presentations is posted at: http://www.eme2016.org/index.php/25-2/

[ANS thanks 17th International EME Conference and IW3HVB for the above information]

+ SPACE EXPLORATION EDUCATORS CONFERENCE (SEEC)

February 9-11, 2017
at Space Center Houston
1601 NASA Pkwy, Houston, TX 77058

Experience three days of complete immersion into the out-of-this world adventure of space exploration!

This conference is for grades kindergarten to 12th – and not just for science teachers! Space Center Houston strives to use space to teach across the curriculum. The activities presented can be used for science, language arts, mathematics, history, and more.

Attend sessions hosted by the actual scientists and engineers working on exciting endeavors like the International Space Station and explorations of Mars and the planets beyond. Hear from the astronauts leading the charge in exploration! Come learn about the bold vision to send humans back to the Moon and off to Mars! Attend sessions presented by educators and receive ready to implement classroom ideas and experience minds-on, hands-on fun. Network with fellow educators, take back a multitude of cross-curriculum ideas and activities and earn 24 hours of continuing professional education credit.

For more information or to register, visit : http://spacecenterSEEC.org, email seec at spacecenter dot org or call (281)244-2149.

[ANS thanks NEON - NASA Educators Online Network]

+ There has been a date change for the satellite presention to the Victor Valley (CA) ARC.

The presentation will take place Tuesday, OCTOBER 11, 2016, 7:00 PM at the Sitting Bull Academy Library, 19445 Sitting Bull Road, Apple Valley. CA.

[ANS thanks Clint K6LCS for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, AA8EM)
aa8em at amsat dot org